UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
DAFTUAR, SAKET K

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>February 17th, 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19,21,22 and 24-45* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19,21,22 and 24-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
       Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
       Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

Response to Amendment

1.   This office action is responsive to the amendment filed on February 17th, 2009.

Claims 1-19, 21-22, and 24-45 are presented for the further examination.

Response to Arguments

2.   Applicant's arguments with respect to claims 1-19, 21-22, and 24-45 have been

considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3.   Claims 1-45 are objected to because of the following informalities: Claims 1-45

recites "receiving at the first processor, packet; reading, at the first processor, an N-

tuple address of the first processor". It is unclear whether or not "the first processor" is

hardware processor such as CPU or software processor such as "processor module" as

the specification discloses "data processor" and "client processor". For the purpose of

examination and by giving the broadest reasonable interpretation to claimed subject

matter, "the processor" is treated as a software processor as there are enough

evidences that such "processor" could be implemented as software.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

5.   Claims 27-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 27-29 now recites "a system for addressing packets in a firewall cluster..." and "a firewall cluster within a single network..." are directed towards a software means. As evidenced by claims 38-45 and supported by paragraph 053 of the current application specification discloses that applicant intends to use software such as computer programs, machine instructions, and high level codes that can be executed by the compiler. As per claim objection, stated above, however, such programs, instructions, and codes are not part of the hardware machine, processor, or compiler. Therefore, claims are directed towards non-statutory subject matter.

The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se.*

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When <u>functional</u> descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally

interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Merely claiming <u>non</u>functional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1-14, 17-19, 21-22, 27-28, 30-35, 38-42 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge et al US Patent Number 6,160,811 (hereinafter Partridge),   Mikkonen US Patent Number 6,885,633 B1 (hereinafter Mikkonen) and further in view of Bommareddy et al US Patent Number 6,880,089 (hereinafter Bommareddy).

As per claim 1, Partridge discloses receiving, at a first processor, a first packet (column 2, lines 11-17); determining as a function of a multidimensional space for representing addresses [data link format for header, column 2, lines 25-26] processed by a set of data processors, a first address for the first packet (see Figure 1, column 3,line 65 – column 4,line 11); and forwarding the first packet based on the determined first address (see Figure 1, column 3,line 65 – column 4,line 11).

However, Partridge is silent about selecting one of the firewall nodes for processing a first packet wherein a first processor is associated with the selected firewall node and having a firewall cluster within the single network.

Mikkonen teaches selecting one of the firewall nodes for processing a first packet wherein a first processor is associated with the selected firewall node (See figure 1, blocks 100a - 100b, see column 2,line 65 - column 3, line 40).

Bommareddy teaches a firewall cluster within the single network (see figures 1, 4, and 8, column 1, line 66 – column 2, line 60, column 3, line 1 – column 4, line 58, column 6, line 13 – column 8, line 45, column 9, line 5 - column 10, line 67) and processing the set of data packet from first packet from first address to second address wherein the second address being within a range of addresses assigned by firewall cluster ((see figures 1, 4, and 8, column 1, line 66 – column 2, line 60, column 3, line 1 – column 4, line 58, column 6, line 13 – column 8, line 45, column 9, line 5 - column 10, line 67, column 11, lines 9-65, column, column 15, line 40 – column 18, line 36)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Partridge, Mikkonen and Bommareddy to provide a enhanced packet switched data handling system to a high speed network device securely switching data between the high speed network devices communicating behind the firewall clustering system using a enhanced hash function and arithmetic operations whereas the firewall cluster system being configured to operate in manner that creates or configures a firewall cluster on both internal and external network flow controllers to monitor the health of firewalls by probing firewall data packets through both internal and external firewalls whereas the flow controllers distribute traffic based on the source and destination IP addresses of a packet and ensuring that all IP-based protocols are supported and within the range of IP based protocols.

As per claim 2, Partridge discloses using an N-tuple space as the multidimensional space (see figures 1-2 and 4-5, data link format for header).

As per claim 3, Partridge discloses assigning to the first processor a first region based on the N-tuple space (see figures 1-2 and 4-5, data link format for header).

As per claim 4, Partridge discloses using the first address, such that the first address represents a point within the first region (see Figures 1-2 and 4-5, column 3, line 65 – column 4, line 32).

As per claim 5, Partridge discloses using N address values as the N-tuple, such that the N address values represent the point (see Figures 1-2 and 4-5, column 3, line 65 – column 4, line 32).

As per claim 6, Partridge discloses using the N-tuple space, such that N is equal to a value of at least two (see Figures 1-2 and 4-5, column 3, line 65 – column 4, line 32).

As per claim 7, Partridge discloses assigning to a second processor a second region based on the N-tuple space, such that the first region is separate from the second region (see figures 1-2 and 4-5, data link format for header).

As per claim 8, Partridge discloses forwarding, at the second processor, a second packet with a second address determined based on the second region, such that the second packet does not conflict with the first packet (see Figure 1, column 3,line 65 – column 4,line 11 and column 4, lines 22- 32).

As per claim 9, Partridge discloses forwarding, at the second processor, a second packet with a second address determined based on the second region, such that the second address does not conflict with the first address (see Figure 1, column 3,line 65 – column 4,line 11 and column 4, lines 22- 32).

As per claim 10, Partridge discloses receiving, at a first one of the processors, a packet (column 2, lines 11-17); reading, at the first processor, an N-tuple [data link format for header] address of the received packet (see Figure 1, column 3,line 65 – column 4,line 11); determining whether the N-tuple address is within an N-tuple space assigned to the first processor (see Figure 1, column

3,line 65 – column 4,line 32);sending the packet with the N-tuple address, when it

is determined that the N- tuple address is within the N-tuple space assigned to

the first processor (see Figure 1, column 3,line 65 – column 4, line 32) ; and

determining a modified [TSU modifies the header] N-tuple address, when it is

determined that the N- tuple address is not within the N-tuple space assigned to

the first processor and sending the packet with the modified N-tuple address (see

Figure 1, column 3,line 65 – column 4,line 32).

, Partridge is silent about selecting one of the firewall nodes for processing

a first packet wherein a first processor is associated with the selected firewall

node and having a firewall cluster within the single network.

Mikkonen teaches selecting one of the firewall nodes for processing a first

packet wherein a first processor is associated with the selected firewall node

(See figure 1, blocks 100a - 100b, see column 2,line 65 - column 3, line 40).

Bommareddy teaches a firewall cluster within the single network (see

figures 1, 4, and 8, column 1, line 66 – column 2, line 60, column 3, line 1 –

column 4, line 58, column 6, line 13 – column 8, line 45, column 9, line 5 -

column 10, line 67) and processing the set of data packet from first packet from

first address to second address wherein the second address being within a range

of addresses assigned by firewall cluster ((see figures 1, 4, and 8, column 1, line

66 – column 2, line 60, column 3, line 1 – column 4, line 58, column 6, line 13 –

column 8, line 45, column 9, line 5 - column 10, line 67, column 11, lines 9-65,

column, column 15, line 40 – column 18, line 36)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Partridge, Mikkonen and Bommareddy to provide a enhanced packet switched data handling system to a high speed network device securely switching data between the high speed network devices communicating behind the firewall clustering system using a enhanced hash function and arithmetic operations whereas the firewall cluster system being configured to operate in manner that creates or configures a firewall cluster on both internal and external network flow controllers to monitor the health of firewalls by probing firewall data packets through both internal and external firewalls whereas the flow controllers distribute traffic based on the source and destination IP addresses of a packet and ensuring that all IP-based protocols are supported and within the range of IP based protocols.

As per claim 11, Partridge discloses reading as the N-tuple address [reading headers of network packet address], a plurality of values from the received packet (see Figure 1, column 3, line 65 – column 4, line 32).

As per claim 12, Partridge discloses reading at least a source port (column 1, lines 18-19, column 2, and lines 11-13).

As per claim 13, Partridge discloses determining whether the N-tuple address is within the N-tuple space based on a comparison between the N-tuple address of the packet and the N-tuple space assigned to the first processor (see Figures 1-2, column 3,line 65 – column 4,line 32, column 4, line 56 – column 5, line 43).

As per claim 14, Partridge discloses determining whether the N-tuple address of the packet is within the N-tuple space based a quadrant identifier [link level id] value, wherein the quadrant identifier value corresponds to the first processor (see Figures 1-5, column 3,line 65 – column 4,line 32, column 4, line 56 – column 5, line 43).

As per claim 17, Partridge discloses adding a value to the N-tuple address, such that the modified N-tuple address is within the N-tuple space assigned to the first processor (see Figures 1-2, column 3,line 65 – column 4,line 32, column 4, line 56 – column 5, line 43).

As per claim 18, Partridge discloses modifying the N-tuple address based on the quadrant identifier value (see Figures 1-2, column 3,line 65 – column 4,line 32, column 4, line 56 – column 5, line 43).

As per claim 19, Partridge discloses sending the packet with the N-tuple address, such that the packet does not conflict with another N-tuple address associated with a second one of the processors (see Figure 1, column 3,line 65 – column 4,line 11 and column 4, lines 22- 32).

As per claim 21, Partridge discloses using a computer as the first processor (column 1, lines 8-10, column 3, and line 65).

As per claim 22, Partridge discloses using a router as the first processor (column 1, line 11, column 3, and line 65).

As per claims 27, 30, and 45, claim 27, 30 and 45 do not teach or further

define over the limitation as recited in claim 1. Therefore, claims 27, 30 and 45

are rejected under same scopes as discussed in claim1, supra.

As per claim 28, claim 28 does not teach or further define over the

limitation as recited in claim 10. Therefore, claims 28 rejected under same

scopes as discussed in claim 10, supra.

As per claims 31-35 and 38-42, claims 31-35 and 38-42 do not teach or

further define over the limitations as recited in claims 10-14. Therefore, claims

31-35 and 38-42 are rejected under same scopes as discussed in claims 10-14,

supra.

8.   Claims 15-16, 25-26, 29, 36-37, and 43-44 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Partridge, Mikkonen, and Bommareddy as applied to

claims 1-14, 17-19, 21-22, 27-28, 30-35, 38-42 and 45 above and further in view of End

III US Patent Number 7,185,041 B1 (hereinafter End).

Partridge, Mikkonen, and Bommareddy discloses receiving, at a first

processor, a first packet; determining as a function of a multidimensional space

for representing addresses processed by a set of data processors, a first address

for the first packet; and forwarding the first packet based on the determined first

address.

Partridge, Mikkonen, and Bommareddy are silent about determining the

identifier value based on a hash function and a modulo division.

As per claims 15, 36, and 43, End teaches determining the identifier value

based on a hash function (see column 4, lines 17-62).

As per claim 16, End teaches determining the identifier value based on a

hash function and a modulo division (see column 4, lines 17-62).

Therefore, it would have been obvious to one having ordinary skill in the

art at the time the invention was made to combine the teachings of Partridge,

Mikkonen , Bommareddy and End to provide a enhanced packet switched data

handling system to a high speed network device securely switching data between

the high speed network devices communicating behind the firewall clustering

system using a enhanced hash function and arithmetic operations whereas the

firewall cluster system being configured to operate in manner that creates or

configures a firewall cluster on both internal and external network flow controllers

to monitor the health of firewalls by probing firewall data packets through both

internal and external firewalls whereas the flow controllers distribute traffic based

on the source and destination IP addresses of a packet and ensuring that all IP-

based protocols are supported and within the range of IP based protocols.

As per claim 24, Partridge discloses receiving, at a first one of the

processors, a packet column 2, lines 11-17); reading, at the first processor, an N-

tuple [data link format for header] address of the received packet (see Figure 1,

column 3,line 65 – column 4,line 11); determining whether the read N-tuple

address corresponds to the first processor based on the quadrant identifier (see

Figure 1, column 3,line 65 – column 4,line 32);sending the packet with the N-tuple address, when the quadrant identifier corresponds to the first processor (see Figure 1, column 3,line 65 – column 4, line 32); and determining a modified [TSU modifies the header] N-tuple address, when the quadrant identifier does not corresponds to the first processor and sending the packet with the modified N-tuple address(see Figure 1, column 3,line 65 – column 4, line 32).

However Partridge is silent about the quadrant identifier based on a hash function, and modulo division.

End teaches the quadrant identifier based on a hash function, and modulo division (see column 4, lines 18-62).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Partridge, Mikkonen , Bommareddy and End to provide a enhanced packet switched data handling system to a high speed network device securely switching data between the high speed network devices communicating behind the firewall clustering system using a enhanced hash function and arithmetic operations whereas the firewall cluster system being configured to operate in manner that creates or configures a firewall cluster on both internal and external network flow controllers to monitor the health of firewalls by probing firewall data packets through both internal and external firewalls whereas the flow controllers distribute traffic based on the source and destination IP addresses of a packet and ensuring that all IP-based protocols are supported and within the range of IP based protocols.

As per claim 25-26 Partridge is silent about the use of firewalls as the first processor.

As per claim 25, Mikkonen teaches assigning each of the set of processors a firewall node number (See figure 1, blocks 100a - 100b, see column 2,line 65 - column 3, line 40).

As per claim 26, Mikkonen teaches determining the address corresponds to the first processor based on firewall node number (See figure 1, blocks 100a - 100b, see column 2,line 65 - column 3, line 40).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Partridge, Mikkonen , Bommareddy and End to provide a enhanced packet switched data handling system to a high speed network device securely switching data between the high speed network devices communicating behind the firewall clustering system using a enhanced hash function and arithmetic operations whereas the firewall cluster system being configured to operate in manner that creates or configures a firewall cluster on both internal and external network flow controllers to monitor the health of firewalls by probing firewall data packets through both internal and external firewalls whereas the flow controllers distribute traffic based on the source and destination IP addresses of a packet and ensuring that all IP-based protocols are supported and within the range of IP based protocols..

As per claims 29, 37, and 44, claim 29, 37 and 44 do not teach or further define over the limitation as recited in claim 24. Therefore, claims 29, 37 and 44 are rejected under same scopes as discussed in claim 24, supra.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.   System and method for detecting and countering a network attack by Etheridge et al. US Publication Number 2004/0054925 A1.

b.   Hash-based systems and methods for detecting, preventing, and tracing network worms and viruses by Milliken US Publication Number 2003/0115485 A1.

c.   Dynamic packet filter utilizing session tracking by Goldberg et al. US Publication Number 2004/0013112 A1.

d.   IP datagram over multiple queue pairs by Graham et al. US Patent Number 7,133,405 B2.

e.   Handling packet fragments in a distributed network service environment by Albert et al. US Patent Number 6,742,045 B1.

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Contact Information

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Saket K. Daftuar whose telephone number is 571-272-

8363. The examiner can normally be reached on 8:30am-5:00pm M-W.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. K. D./

Examiner, Art Unit 2451

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2451